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10/003,543	10/24/2001	Kristopher Allyn Klink	PU000147	5966

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JOSEPH S. TRIPOLI
THOMSON MULTIMEDIA LICENSING INC.
2 INDEPENDENCE WAY
P.O. BOX 5312
PRINCETON, NJ 08543-5312

EXAMINER	
PIZIALI, JEFFREY J	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/003,543	Applicant(s) KLINK, KRISTOPHER ALLYN
	Examiner Jeff Piziali	Art Unit 2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2004 (Paper No. 4)*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,6,13-20 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,13-20 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 24 October 2001. These drawings are acceptable.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 5, 6, 13-20, and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. All amended (Paper No. 4, filed 14 April 2004) independent claims newly recite such limitations as *buffering a pixel row and detecting if the buffered pixel row has all unused pixels* (see Claim 1), *storing a pixel row in a buffer and detecting if the stored pixel row contains active video pixels* (see Claim 13), as well as *a buffer for storing pixel rows and a controller detecting whether pixel rows stored in the buffer contains all unused pixels* (see Claim 15). No such explicit pixel row buffer detection techniques are discussed anywhere in the pending specification. The instant specification mentions, "A conventional method of accessing the imager array is done by addressing each pixel by first shifting a row of analog pixel elements into a sample and hold buffer 22 (s/h buffer) and then transferring these voltages to the

appropriate pixels during a row access latch" (see Page 4, Lines 2-5). However, the specification never discloses buffering a pixel row and then detecting the buffered pixel row contents in order to determine whether LCD rows should then be driven with video signals or a common black signal.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6, and 13-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitagawa (US 5,844,539).

Regarding claim 1, Kitagawa discloses a method of reducing a column clock [Fig. 3; VCK] time in a liquid crystal display [Fig. 1; 3] (see Column 1, Lines 5-10 and Column 4, Lines 1-22), comprising the steps of: buffering [Fig. 1; 1 & 2 operating in conjunction] a pixel row; detecting if the buffered pixel row has all unused pixels [Figs. 2B & 2C; 32]; driving all pixels on a corresponding imager row [Figs. 2B & 2C; 37] to black [Fig. 3; VBLK] simultaneously if the buffered pixel row has all unused pixels; and transferring the buffered pixel row to the corresponding imager row if the buffered pixel row has used pixels [Figs. 2B & 2C; 36] (see Fig. 4; Column 6, Line 54 - Column 7, Line 63).

Regarding claim 2, Kitagawa discloses the pixels on the corresponding imager row are driven to black by applying a common DC voltage [Fig. 3; VBLK] to the imager row (see Column 6, Lines 40-53).

Regarding claim 3, Kitagawa discloses the steps of driving all pixels on the corresponding imager row comprises the steps of switching all pixels on the imager row to a first voltage [Fig. 4; VBLK high] during the negative phase of a pixel and switching all pixels on the imager row to a second voltage [Fig. 4; VBLK low] during a positive phase of the pixel (see Fig. 4; Column 7, Lines 37-63).

Regarding claim 6, Kitagawa discloses the method further comprises the step of randomly accessing a start of a plurality of rows in the liquid crystal display (see Column 3, Lines 37-45). Where the row access is inherently randomly determined (note the blanked row 37 just below the display region 36 in Figs. 2B & 2C for instance) by the video signal resolution to be displayed.

Regarding claim 13, Kitagawa discloses a method of reducing a column clock [Fig. 3; VCK] time in a liquid crystal display [Fig. 1; 3] (see Column 1, Lines 5-10 and Column 4, Lines 1-22), comprising the steps of: randomly accessing a row in a liquid crystal display imager (see Column 3, Lines 37-45 -- where row access is inherently randomly determined by the video signal resolution to be displayed) having a plurality of rows (see Fig. 2A); storing a pixel row in a buffer [Fig. 1; 1 & 2 operating in conjunction], the stored pixel row corresponding to the

randomly accessed row; detecting if the stored pixel row contains active video pixels [Figs. 2B & 2C; 36]; selectively addressing the randomly accessed row if the stored pixel row contains active video pixels and avoiding addressing the randomly accessed row [Figs. 2B & 2C; 37] if the stored pixel row contains substantially all unused pixels [Figs. 2B & 2C; 32] (see Fig. 5; Column 7, Lines 64 - Column 8, Line 27).

Regarding claim 14, Kitagawa discloses the steps of driving all pixels in an avoided row to black by switching all pixels on the avoided row to a first voltage [Fig. 5; VBLK high] during a negative phase of the given pixel and switching all pixels on the avoided row to a second voltage [Fig. 5; VBLK low] during a positive phase of the pixel (see Column 7, Lines 64 - Column 8, Line 27).

Regarding claim 15, Kitagawa discloses a liquid crystal display imager system [Fig. 1; 3] (see Column 1, Lines 5-10 and Column 4, Lines 1-22), comprises: a buffer [Fig. 1; 1 & 2 operating in conjunction] for storing pixel rows; a row address selector [Figs. 1 & 3; 33]; an imager having a plurality of rows (see Fig. 2A), the imager being coupled to the buffer and the row address selector; and a random access controller [Fig. 1; 4 working in conjunction with the SYNC signal] coupled to the buffer and the row address selector, the controller detects whether pixel rows stored in the buffer contains all unused pixels, and avoids addressing corresponding rows in the imager if stored pixel rows having all unused pixels are detected (see Fig. 5; Column 7, Lines 64 - Column 8, Line 27). Where row access is inherently randomly determined (note

the blanked row 37 just below the display region 36 in Figs. 2B & 2C for instance) by the video signal resolution to be displayed.

Regarding claim 16, Kitagawa discloses the liquid crystal display imager system further comprises a switching mechanism [Fig. 3; PSW1 - PSWN] that drives all pixels [Figs. 2B & 2C; 32] on a given imager row [Figs. 2B & 2C; 37] to black simultaneously if the corresponding row in the buffer has all unused pixels (see Column 6, Lines 1-53).

Regarding claim 17, Kitagawa discloses the row address selector progresses through all rows of the imager and the switching mechanism simultaneously drives all pixels on any imager row to black if the corresponding row in the buffer has all unused pixels until a row with active video [Figs. 2B & 2C; 36] is detected in the buffer (see Fig. 5; Column 7, Lines 64 - Column 8, Line 27).

Regarding claim 18, Kitagawa discloses the switching mechanism drives the pixels on the imager row to black by applying a common DC voltage [Fig. 3; VBLK] to the imager row (see Column 6, Lines 40-53)

Regarding claim 19, Kitagawa discloses the switching mechanism drives all pixels on a given imager row to black by switching all pixels on the given imager row to a first voltage [Fig. 5; VBLK high] during the negative phase of a pixel and switches all pixels on the given imager

row to a second voltage [Fig. 5; VBLK low] during a positive phase of the pixel until the row address selector reaches an active video row (see Column 7, Lines 64 - Column 8, Line 27).

Regarding claim 20, Kitagawa discloses the row address selector operates at a faster speed while incrementing through imager rows having all pixels being driven to black and operates at a slower speed while incrementing through imager rows having active video (see Fig. 4; Column 7, Lines 37-63).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa (US 5,844,539) in view of Fairbanks et al. (US 5,130,703).

Regarding claim 5, Kitagawa does not explicitly disclose the first voltage is 16 volts and the second voltage is 0 volts. However, Fairbanks does disclose driving a liquid crystal display (see Column 1, Lines 5-10) with a first voltage of 16 volts and a second voltage of 0 volts (see Column 3, Line 61 - Column 4, Line 9). Kitagawa and Fairbanks are analogous art, because they are from the shared field of driving liquid crystal display devices. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Fairbanks' voltage levels with

Kitagawa's clock time reduction method and circuitry, so as to optimize screen contrast and picture quality.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa (US 5,844,539) in view of Huang et al. (US 5,965,907).

Regarding claim 22, Kitagawa does not explicitly disclose the system is for a liquid crystal on silicon crystal display. However, Huang does disclose substituting an active matrix LCD with a liquid crystal on silicon crystal display (see Column 4, Lines 46-67). Kitagawa and Huang are analogous art, because they are from the shared field of liquid crystal display devices. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Huang's LCoS display as Kitagawa's LCD, so as to utilize a display that is relatively easy and inexpensive to manufacture.

Response to Arguments

9. Applicant's arguments filed 14 April 2004 (Paper No. 4) have been fully considered but they are not persuasive. The applicant contends the cited prior art of Kitagawa (US 5,844,539) neglects to disclose buffering a pixel row; detecting if the buffered pixel row has all unused pixels; driving all pixels on a corresponding imager row to black simultaneously if the buffered pixel row has all unused pixels; and transferring the buffered pixel row to the corresponding imager row if the buffered pixel row has used pixels. However, the examiner respectfully disagrees. On the contrary, Kitagawa discloses buffering [Fig. 1; 1 & 2 operating in conjunction] a pixel row; detecting if the buffered pixel row has all unused pixels [Figs. 2B & 2C; 32]; driving

all pixels on a corresponding imager row [Figs. 2B & 2C; 37] to black [Fig. 3; VBLK] simultaneously if the buffered pixel row has all unused pixels; and transferring the buffered pixel row to the corresponding imager row if the buffered pixel row has used pixels [Figs. 2B & 2C; 36] (see Fig. 4; Column 6, Line 54 - Column 7, Line 63). Kitagawa explicitly states, "The vertical scanning circuit 33 sequentially selects rows of the pixels 32 formed in the screen 31. The horizontal scanning circuit 34 sequentially distributes [i.e. buffers] the video signals VSIG supplied from the main-driver 1 to rows of the pixels 32, and writes the distributed signals into the selected pixels 32" (see Column 4, Lines 29-34). By such reasoning, rejection of the claims in deemed necessary, proper, and thereby maintained at this time.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J.P.
7 July 2004

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600